

WHAT IS CLAIMED IS:

1. A cable tray assembly for a precision drive stage, said drive stage having a stage motion controlling unit that controls motion of said drive stage in a specified longitudinal direction and a transverse direction which is perpendicular to said longitudinal direction; said cable tray assembly comprising;
  - a table placed on said drive stage;
  - a shaft extending in said transverse direction;
  - a planar elongated member with one end portion extending in said longitudinal direction and the opposite end portion attached to and wound around said shaft, said elongated member being made of an elastic material and having a naturally arcuate sectional shape in said transverse direction;
  - a plurality of conduits each attached to said one end portion of said elongated member and to said table at one end; and
  - a shaft motion controlling system for controlling rotation and axial motion of said shaft in correlation with a motion of said drive stage by said stage motion controlling unit.
2. The cable tray assembly of claim 1 comprising a pair of shafts extending in said transverse direction and said planar elongated member is one of a pair of similarly structured elongated members each with one end portion extending in said longitudinal direction and having conduits attached thereto and the opposite end portion wound around a corresponding one of said shafts.
3. The cable tray assembly of claim 1 wherein said stage motion controlling unit includes a longitudinal stage motion controlling device that controls motion of said drive stage in said longitudinal direction and said shaft motion controlling system includes a rotation controlling device that controls rotation of said shaft such that said table moves in said longitudinal direction and said shaft rotates to wind or unwind said elongated

member around or from said shaft so as to move said table in said longitudinal direction by a same specified longitudinal distance by which said stage motion controlling unit moves said drive stage in said longitudinal direction.

4. The cable tray assembly of claim 1 wherein said stage motion controlling  
5 unit includes a transverse stage motion controlling device that controls motion of said drive stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shaft in said transverse direction such that said table and said shaft move in said transverse direction by a same specified transverse distance.

10 5. The cable tray assembly of claim 3 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said drive stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shaft in said transverse direction such that said table and said shaft move in said transverse direction by a same specified transverse distance.  
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6. The cable tray assembly of claim 2 wherein said stage motion controlling unit includes a longitudinal stage motion controlling device that controls motion of said drive stage in said longitudinal direction and said shaft motion controlling system includes a rotation controlling device that controls rotation of said shafts such that said table moves  
20 in said longitudinal direction, one of said shafts rotates to wind up the corresponding elongated member therearound, and the other of said shafts rotates to unwind the corresponding elongated member therefrom so as to move said table in said longitudinal direction by a same specified longitudinal distance by which said stage motion controlling unit moves said drive stage in said longitudinal direction.

25 7. The cable tray assembly of claim 2 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said drive stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shafts in said transverse

direction such that said table and said shafts move in said transverse direction by a same specified transverse distance.

8. The cable tray assembly of claim 6 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said drive stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shafts in said transverse direction such that said table and said shafts move in said transverse direction by a same specified transverse distance.

9. A lithography system comprising:

10 an illumination source;

an optical system;

a reticle stage arranged to retain a reticle;

a working stage;

15 a stage motion controlling unit that controls motion of said working stage in a specified longitudinal direction and a transverse direction which is perpendicular to said longitudinal direction;

a wafer table placed on said drive stage and arranged to retain a workpiece;

a shaft extending in said transverse direction;

20 a planar elongated member with one end portion extending in said longitudinal direction and the opposite end portion attached to and wound around said shaft, said elongated member being made of an elastic material and having a naturally arcuate sectional shape in said transverse direction;

a plurality of conduits each attached to said one end portion of said elongated member and to said wafer table at one end; and

a shaft motion controlling system that controls rotation and axial motion of said shaft in correlation with a motion of said working stage by said stage motion controlling unit.

10. The lithography system of claim 9 comprising a pair of shafts extending in  
5 said transverse direction and said planar elongated member is one of a pair of similarly structured elongated members each with one end portion extending in said longitudinal direction and having conduits attached thereto and the opposite end portion wound around a corresponding one of said shafts.

11. The lithography system of claim 9 wherein said stage motion controlling  
10 unit includes a longitudinal stage motion controlling device that controls motion of said working stage in said longitudinal direction and said shaft motion controlling system includes a rotation controlling device that controls rotation of said shaft such that said wafer table moves in said longitudinal direction and said shaft rotates to wind or unwind  
15 said elongated member around or from said shaft so as to move said wafer table in said longitudinal direction by a same specified longitudinal distance by which said stage motion controlling unit moves said working stage in said longitudinal direction.

12. The lithography system of claim 9 wherein said stage motion controlling  
unit includes a transverse stage motion controlling device that controls motion of said  
working stage in said transverse direction and said shaft motion controlling system includes  
20 a transverse motion controlling device that controls motion of said shaft in said transverse direction such that said wafer table and said shaft move in said transverse direction by a same specified transverse distance.

13. The lithography system of claim 11 wherein said stage motion controlling  
unit includes a transverse stage motion controlling device that controls motion of said  
25 working stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shaft in said transverse direction such that said wafer table and said shaft move in said transverse direction by a same specified transverse distance.

14. The lithography system of claim 10 wherein said stage motion controlling unit includes a longitudinal stage motion controlling device that controls motion of said working stage in said longitudinal direction and said shaft motion controlling system includes a rotation controlling device that controls rotation of said shafts such that said wafer table moves in said longitudinal direction, one of said shafts rotates to wind up the corresponding elongated member therearound, and the other of said shafts rotates to unwind the corresponding elongated member therefrom so as to move said wafer table in said longitudinal direction by a same specified longitudinal distance by which said stage motion controlling unit moves said working stage in said longitudinal direction.

10 15. The lithography system of claim 10 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said working stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shafts in said transverse direction such that said wafer table and said shafts move in said transverse direction by a same specified transverse distance.

16. The lithography system of claim 14 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said working stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shafts in said transverse direction such that said wafer table and said shafts move in said transverse direction by a same specified transverse distance.

20 25 17. A lithography system comprising:  
an illumination source;  
an optical system;  
a reticle stage;  
a stage motion controlling unit that controls motion of said reticle stage in a specified longitudinal direction and a transverse direction which is perpendicular to said longitudinal direction;

a wafer table placed on said drive stage and arranged to retain a reticle;

a shaft extending in said transverse direction;

5 a planar elongated member with one end portion extending in said longitudinal direction and the opposite end portion attached to and wound around said shaft, said elongated member being made of an elastic material and having a naturally arcuate sectional shape in said transverse direction;

10 a plurality of conduits each attached to said one end portion of said elongated member and to said wafer table at one end;

15 a shaft motion controlling system that controls rotation and axial motion of said shaft in correlation with a motion of said reticle stage by said stage motion controlling unit;

a working stage arranged to retain a workpiece; and

20 an enclosure that surrounds at least a portion of the working stage, the enclosure having a sealing surface.

18. The lithography system of claim 17 comprising a pair of shafts extending in said transverse direction and said planar elongated member is one of a pair of similarly structured elongated members each with one end portion extending in said longitudinal direction and having conduits attached thereto and the opposite end portion wound around a corresponding one of said shafts.

19. The lithography system of claim 17 wherein said stage motion controlling unit includes a longitudinal stage motion controlling device that controls motion of said reticle stage in said longitudinal direction and said shaft motion controlling system includes a rotation controlling device that controls rotation of said shaft such that said wafer table moves in said longitudinal direction and said shaft rotates to wind or unwind said elongated member around or from said shaft so as to move said wafer table in said longitudinal direction by a same specified longitudinal distance by which said stage motion controlling unit moves said reticle stage in said longitudinal direction.

20. The lithography system of claim 17 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said reticle stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shaft in said transverse direction such that said wafer table and said shaft move in said transverse direction by a same specified transverse distance.

21. The lithography system of claim 19 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said reticle stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shaft in said transverse direction such that said wafer table and said shaft move in said transverse direction by a same specified transverse distance.

22. The lithography system of claim 18 wherein said stage motion controlling unit includes a longitudinal stage motion controlling device that controls motion of said reticle stage in said longitudinal direction and said shaft motion controlling system includes a rotation controlling device that controls rotation of said shafts such that said wafer table moves in said longitudinal direction, one of said shafts rotates to wind up the corresponding elongated member therearound, and the other of said shafts rotates to unwind the corresponding elongated member therefrom so as to move said wafer table in said longitudinal direction by a same specified longitudinal distance by which said stage motion controlling unit moves said reticle stage in said longitudinal direction.

23. The lithography system of claim 16 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said reticle stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shafts in said transverse direction such that said wafer table and said shafts move in said transverse direction by a same specified transverse distance.

24. The lithography system of claim 22 wherein said stage motion controlling unit includes a transverse stage motion controlling device that controls motion of said reticle stage in said transverse direction and said shaft motion controlling system includes a transverse motion controlling device that controls motion of said shafts in said transverse direction such that said wafer table and said shafts move in said transverse direction by a same specified transverse distance.

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25. An object manufactured with the lithography system of claim 9.

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26. An object manufactured with the lithography system of claim 17.

27. A wafer on which an image has been formed by the lithography system of claim 9.

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28. A wafer on which an image has been formed by the lithography system of claim 17.

29. A method for making an object using a lithography process, wherein the lithography process utilizes a lithography system as recited in claim 9.

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30. A method for making an object using a lithography process, wherein the lithography process utilizes a lithography system as recited in claim 17.

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31. A method for patterning a wafer using a lithography process, wherein the lithography process utilizes a lithography system as recited in claim 9.

32. A method for patterning a wafer using a lithography process, wherein the lithography process utilizes a lithography system as recited in claim 17.